

**Preliminary Geological report on weathered sandstone Deposit of  
Thuisuanthum Village of Garam Range, Umrangshu, Dima Hasao District of  
Assam**

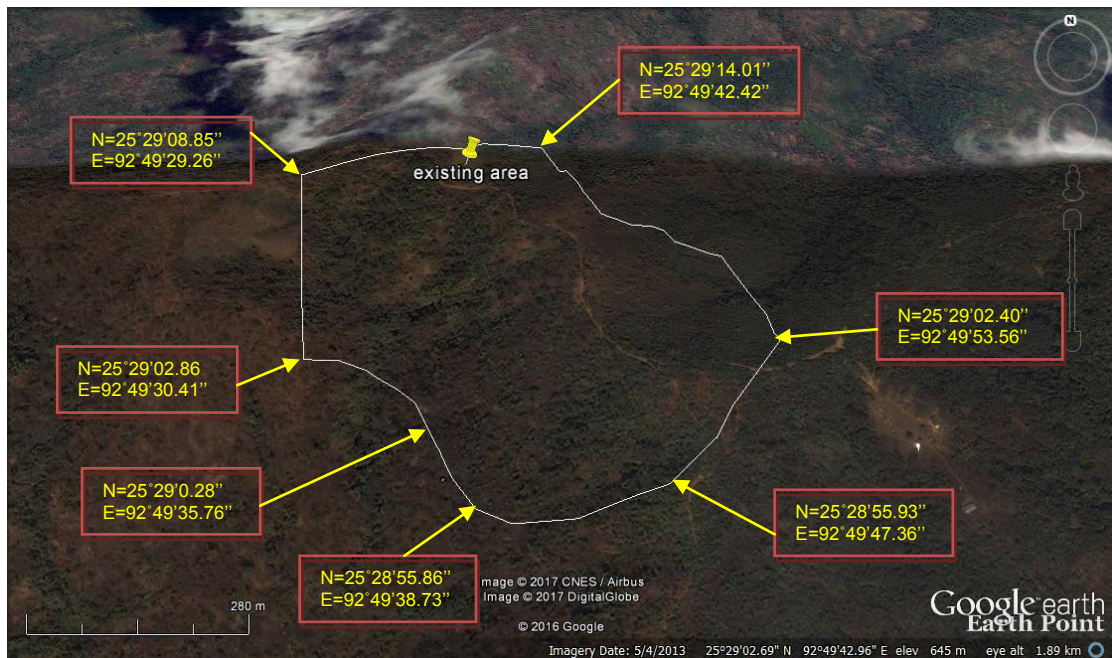
The area under investigation falls within SOI Toposheet No- 83 C / 14 and located in Dima Hasao district of Assam. It covers an area of about 27.3 Hectares .

The study area is located at a distance of about 14 km from Dalmia cement plant in South East direction and 17 km from Umrangshu town in South West direction.

The study area is denudation hills with moderately elevated ridges and steep cut valley. The area constitutes catchments belonging to seasonal to non seasonal flows in SE directions. The entire area is covered by scrub forest.

The coordinate of the study area is mentioned below:-

Google image of investigated area (weathered sandstone)



Sl. No	Latitude(N)	Longitude(E)
1.	25°29'08.85"	92°49'29.26"
2.	25°29'2.86"	92°49'30.41"
3.	25°29'0.28"	92°49'35.76"
4.	25°28'55.86"	92°49'38.73"
5.	25°28'55.93"	92°49'47.36"
6.	25°29'2.40"	92°49'53.56"
7.	25°29'14.01"	92°49'42.42"

## GENERAL GEOLOGY :-

The thick pile of Eocene sediments starting from Basal sandstone to Kopili Formation of the Jaintia Group is exposed in the Garampani - Umrangshu area over the Precambrian basement. Towards south-east, the Jaintias are conformably overlain by the Litho units of the Barail Group.

The Basal Sandstone formation occupies its position just above the Precambrian basement and exposed intermittently from near Panimur to Kopili-Kharkar confluence covering a distance of about 40 km.

The limestone deposit of the area belongs to Sylhet-Limestone formation of Jaintia group. It occupies a large tract and exposed intermittently in NW-SW direction. The major portion of the area covered by the alternating sequence of shale and sandstones of Kopili formation. The lower most position of the Kopili formation is calcareous while the middle portion is argillaceous in nature.

The general stratigraphic sequence of the area can be summarised as below:-

<u>Age</u>	<u>Group</u>	<u>Formation</u>	<u>Description litho-units</u>
	--	Kopili	Alteration of shale and sandstone with minor calcareous band and occasional coal seam.
Eocene	Jaintia	Sylhet Limestone	Limestone-Grey massive and fossiliferous.
	--	Basal Sandstone	Gritty coarse to medium grained quartzitic sandstone. Highly calcareous with silty shale and coal seams.
-----Unconformity-----			
Archean	Gneissic	--	Granites, gneisses and Migmatites.

## Description of Rock types:-

### 1. Kopili Alteration :

The Sandstone of the study area belongs to Kopili formation of Jaintia group. The alternating layers of shale and sandstone are the characteristic features of Kopili formation. In the area under investigation sandstone predominates over shale, the sandstone is medium to fine grained, well sorted and sometimes friable in nature, current bedded, variegated in colour; namely, brownish in colour

when weathered, iron contamination is common. The shale is gray in colour and splintery in nature.

The general trend of the Tertiary rocks exposed in this area is NNE-SSW dipping towards SE. The amount of the dip is almost horizontal.

Lithology of the study area is as follows :-

Lithology	Descriptions
Top Soil	Reddish to yellowish in colour, loose and sticky.
Shale	Grey in colour, sticky, splintery and fossiliferous.
Sandstone	Weathered, brownish in colour. Fine grained, loose. Average thickness is of about 20 m.
Clay	Black to yellowish in colour, sticky.

### Sampling & Chemical Analysis:

Five (5) samples were taken from the study area and submitted to our department's lab for chemical analysis. The result is awaited. However another Five(5) set of samples were analysed at Dalmia Cement Ltd. Laboratory for chemical analysis and it is observed that the weathered sandstone is economically suitable for blending in cement processing and manufacturing. The details of the chemical analysis is given below:-

Sample No	Sample Identification	% TM	LOI at 950°C	% SiO <sub>2</sub>	% Al <sub>2</sub> O <sub>3</sub>	% Fe <sub>2</sub> O <sub>3</sub>	% CaO	% MgO	% SO <sub>3</sub>	% Na <sub>2</sub> O	% K <sub>2</sub> O
1	W/S.ST/THUI/17/01	11.0	6.63	79.4	6.40	4.00	1.20	0.25	0.13	0.36	1.42
2	W/S.ST/THUI/17/02	12.0	6.20	80.3	5.90	3.50	1.54	0.25	0.14	0.36	1.43
3	W/S.ST/THUI/17/03	11.0	5.91	81.3	6.00	3.40	1.10	0.24	0.12	0.34	1.43
4	W/S.ST/THUI/17/04	12.0	6.35	79.6	6.40	4.20	1.10	0.26	0.13	0.31	1.39
5	W/S.ST/THUI/17/05	11.0	5.90	79.8	6.20	4.10	1.50	0.29	0.14	0.40	1.55

### Reserves Calculations:

The G4 estimation of reserves of the study area is as follows:-

Area=27 ha,

If 1 ha is 10,000 sq.mt therefore study area is about 2,70,000 sq mt.

Considered depth of the study area is about 15 mt (Cut-Off .....Aprox.)

Considered specific gravity is 2.2 (Note- The range of specific gravity for Sandstone is 2.2- 2.6)

Total Reserve is 8.91 million ton in approximately.

**Remarks:**

As it is mentioned that the investigation is a preliminary one, the calculation is under G4 Axis. So for accuracy core drilling in the area is required for the reserve calculation.

**PHOTOS :-**



